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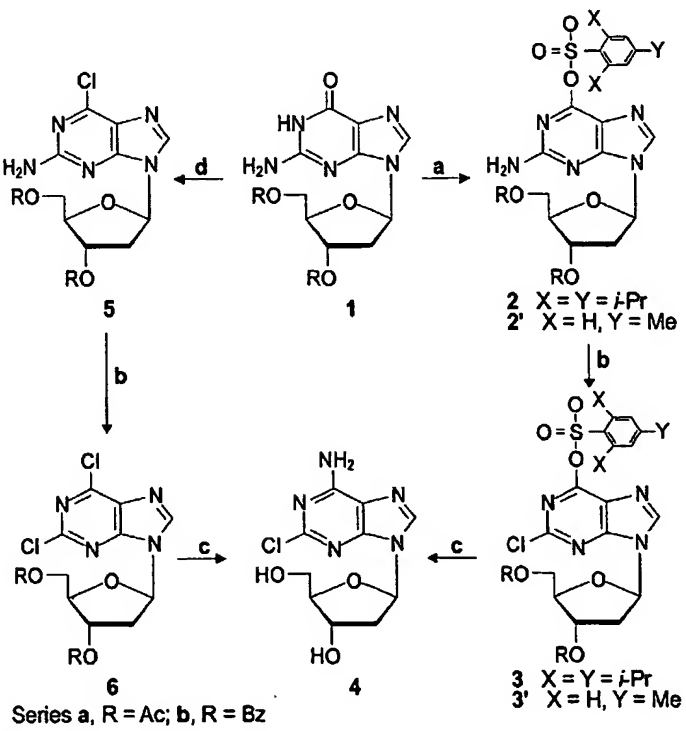
(54) Title: METHOD FOR THE PREPARATION OF 2-HALO-2'-DEOXYADENOSINE COMPOUNDS FROM 2'-DEOXYGUANOSINE



[a] (a) TiPBS-Cl/Et_3N/DMAP/CH_2Cl_2. (b) AcCl/BTEA-NO_2/CH_2Cl_2/–5 to 0 °C. (c) NH_3/MeOH/CH_2Cl_2/Δ. (d) $POCl_3$/BTEA-Cl/*N,N*-dimethylaniline/MeCN/Δ.

(57) Abstract: The present invention is a method for preparing 2-halo-6-aminopurines, and more specifically for preparing the clinical agent cladribine (2-chloro-2'-deoxyadenosine, CldAdo, 4), a drug of choice against hairy-cell leukemia and other neoplasms, from 2-amino-6-oxopurines, which are readily obtained from the naturally occurring compound 2'deoxyguanosine. According to the methods of the present invention, the 6-oxo group of a protected 2'-deoxyguanosine (1) is converted to a 6-(substituted oxy) leaving group, or alternatively to a 6-chloro leaving group, the 2-amino group is replaced with a 2-chloro group, the 6-(substituted oxy) leaving group, or alternatively the 6-chloro leaving group, is replaced with a 6-amino group or, alternatively, a 2,6-dichloro substituted compound is selectively replaced group, and the protecting groups are removed.

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